CLAIMS

The invention claimed is:

1. A nickel-vanadium sputtering component structure comprising at least 99.99 weight%, excluding gases, nickel and vanadium.

2. The sputtering component structure of claim 1 being at least 99.995 weight%, excluding gases, nickel and vanadium.

3. The sputtering component structure of claim 1 being at least 99.999 weight%, excluding gases, nickel and vanadium.

4. The sputtering component structure of claim 1 as a sputtering target structure.

5. The sputtering target structure of claim 4 as a sputtering target pre-fab.

6. The sputtering target structure of claim 4 as a sputtering target.

7. A nickel/vanadium sputtering component structure comprising at least 99.99 weight%, excluding gases, nickel and vanadium and having an average grain size throughout the structure of less than or equal to about 40 microns.

8. The nickel/vanadium sputtering component structure of claim 7 as a sputtering component pre-fab.

9. The nickel/vanadium sputtering component structure of claim 7 as a sputtering component.

10. The nickel/vanadium sputtering component of claim 9 wherein the average grain size is less than or equal to about 30 microns.

11. The nickel/vanadium sputtering component of claim 9 wherein the average grain size is less than or equal to about 20 microns.

12. The nickel/vanadium sputtering component of claim 9 comprising from about 4 weight percent vanadium to about 10 weight percent vanadium.

13. The nickel/vanadium sputtering component of claim 9 comprising about 7 weight percent vanadium.

14. The nickel/vanadium sputtering component of claim 9 as a sputtering target.

15. A layer sputter-deposited from the sputtering target of claim 14.

16. The nickel/vanadium sputtering component of claim 9 comprising at least 99.995 weight%, excluding gases, nickel and vanadium.

17. The nickel/vanadium sputtering component of claim 16 wherein the average grain size is less than or equal to about 30 microns.

18. The nickel/vanadium sputtering component of claim 16 wherein the average grain size is less than or equal to about 20 microns.

19. The nickel/vanadium sputtering component of claim 16 comprising from about 4 weight percent vanadium to about 10 weight percent vanadium.

20. The nickel/vanadium sputtering component of claim 9 comprising at least 99.999 weight%, excluding gases, nickel and vanadium.

21. The nickel/vanadium sputtering component of claim 20 wherein the average grain size is less than or equal to about 30 microns.

22. The nickel/vanadium sputtering component of claim 20 wherein the average grain size is less than or equal to about 20 microns.

23. The nickel/vanadium sputtering component of claim 20 comprising from about 4 weight percent vanadium to about 10 weight percent vanadium.

24. A method for producing a nickel/vanadium structure, comprising:

providing a nickel material which is at least 99.99 weight%, excluding gases, pure in nickel;

providing a vanadium material which is at least 99.99 weight%, excluding gases, pure in vanadium;

melting the nickel and vanadium materials together form a molten nickel/vanadium alloy from the nickel and vanadium materials; and

cooling the nickel/vanadium alloy to form a nickel/vanadium structure, the nickel/vanadium structure being at least 99.99 weight%, excluding gases, pure in nickel and vanadium.

25. The method of claim 24 wherein the nickel/vanadium structure comprises from about 4 weight percent vanadium to about 10 weight percent vanadium.

26. The method of claim 24 wherein the nickel/vanadium structure comprises about 7% vanadium.

27. The method of claim 24 wherein the vanadium material is at least 99.995 weight%, excluding gases, pure in vanadium.

28. The method of claim 24 wherein the nickel material is at least 99.995 weight%, excluding gases, pure in nickel; wherein the vanadium material is at least 99.995 weight%, excluding gases, pure in vanadium; and wherein the nickel/vanadium structure is at least 99.995%, excluding gases, pure in nickel and vanadium.

29. The method of claim 24 wherein the vanadium material is at least 99.999 weight%, excluding gases, pure in vanadium.

30. The method of claim 24 wherein the nickel material is at least 99.999 weight%, excluding gases, pure in nickel; wherein the vanadium material is at least 99.999 weight%, excluding gases, pure in vanadium; and wherein the nickel/vanadium structure is at least 99.999%, excluding gases, pure in nickel and vanadium.

31. The method of claim 24 wherein the nickel/vanadium structure comprises an average grain size throughout the structure of greater than 40 microns, the method further comprising subjecting the nickel/vanadium structure to thermo-mechanical processing to reduce the average grain size to less than or equal to 40 microns.

32. The method of claim 31 further comprising forming a sputtering component from the structure, and wherein an average grain size throughout the sputtering component is less than or equal to 40 microns.

33. The method of claim 32 wherein the sputtering component is a sputtering target.

34. The method of claim 31 wherein the thermo-mechanical processing produces an average grain size throughout the structure of less than or equal to 30 microns.

35. The method of claim 34 further comprising forming a sputtering component from the structure, and wherein an average grain size throughout the sputtering component is less than or equal to 30 microns.

36. The method of claim 35 wherein the sputtering component is a sputtering target.

37. The method of claim 31 wherein the thermo-mechanical processing produces an average grain size throughout the structure of less than or equal to 20 microns.

38. The method of claim 37 further comprising forming a sputtering component from the structure, and wherein an average grain size throughout the sputtering component is less than or equal to 20 microns.

39. The method of claim 38 wherein the sputtering component is a sputtering target.